Kleinschmidt (C. H. A.)

The Necessity for a Higher Standard of Medical Education.

AN ADDRESS

INTRODUCTORY TO THE THIRTIETH SESSION

OF THE

MEDICAL DEPARTMENT

OF THE

University of Georgetown,

DISTRICT OF COLUMBIA,

DELIVERED SEPTEMBER 2, 1878,

BY

C. H. A. KLEINSCHMIDT, M. D.,

PROFESSOR OF PHYSIOLOGY.

WASHINGTON, D. C.
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Prosecutor to the Chair of Anatomy.

ADDRESS.

GENTLEMEN: The unceasing revolutions of the wheel of time have once more brought us to the beginning of a new course; once more this venerable Alma Mater opens her portals to admit the disciples of the healing art, and, in accordance with a time-honored custom, it becomes my pleasant duty to extend to them, in behalf of the Faculty, our welcome to the ranks of students of medicine, and express to the friends of the College, who honor us with their presence to-night, our lively appreciation of the kind feeling evidenced by their attendance upon these exercises.

To find a fitting theme, not already worn thread-bare, for an annual recurrence like the present, is by no means an easy task, and I might perhaps have despaired to interest you to-night, but for the happy circumstance, that this special occasion is not only the beginning of a new course of lectures, but that, as we all sincerely hope, it will also mark the dawn of a new era in the life of this school. It is my purpose, therefore, to lay before you the reasons for this hope, by showing that the University of Georgetown is fully alive to the needs of the profession and the public,—that her President and Faculty are determined to place this institution abreast with the foremost in the land, and that they have the earnest desire to afford to their classes such medical training as will render our alumni the peers of any. In undertaking this task I experience but a single regret: that the subject has not fallen into better hands than mine. Yet this regret is tempered by the belief, nay, the firm conviction, that the intrinsic value of the new plan is so self-evident, and the benefits to be derived therefrom are so great, that it would be able to render interesting the most prosy remarks introducing it to an audience of students who are determined to master the many intricacies of medical science.

Medicine, the oldest, is undoubtedly also the grandest of all secular professions. For, if the noblest study of mankind is man, (and who would doubt it?) then indeed our calling has the brain-born patent of nobility. And the vastness of the subject,—its many, as yet inexplicable, yet no less wondrous and enchanting problems,—its wide-spread and intimate association with all natural science,—the grand purposes for which we study it, relief of human suffering, prevention and healing of disease, prolongation of life, in fine, the preservation of a *mens sana in corpore sano*, thus

affording to man the first and foremost requisite for happiness, a body fitted to enjoy it, since without health there can be no true enjoyment, and last, but not least, that it requires a peculiar fitness in its votaries, and that laymen, as a rule, are absolutely ignorant of the laws governing its practice,—all these have rendered the members of our profession honored and revered by people of every nation, clime and condition, and the great names emblazoned upon our roll of honor, shine with undiminished lustre down the long vista of the past to the present day, and will continue as bright exemplars for honorable emulation as long as the high purposes of the profession,—charity, humanity, and scientific research,—shall be cultivated among coming generations.

That the follower of the Ars Medendi, ever ready and willing to relieve the suffering of his fellow-men, has been held in high esteem from time immemorial, is sung by poet and attested to by the historian. The great bard of Greece, immortal Homer, praises the skill of Machaon, the surgeon in chief of the Hellenic host in strains no less rhythmical and classic than those which perpetuate the wrath of Achilles, the craft of Ulysses, the prowess of Hector, the beauty of Helen, and the constancy of Penelope. Æsculapius, by a grateful posterity, is translated to the gods because of his deeds as physician among men. And in the historic age we see Hippocrates, the revered of his nation, and his presence and skill solicited by the king, who was the life-long enemy of his country. But why go back to the time of classic Greece for examples to illustrate the esteem in which our profession is held? Our own age furnishes an abundance of illustration of the same fact. Van Swieten became not only the professional adviser of his empress, Maria Theresa, but was at the same time her trusted and confidential counsellor in matters not connected with medicine. And in our own country (and I hope you will permit one whose cradle was rocked upon the other side of the Atlantic, but who has striven to become one of you in fact, if not by birth, to make use of this term,)—and in our own country, I say, we find a Benjamin Rush among the signers of the instrument which plucked the brightest jewel from Great Britain's diadem and proclaimed thirteen of her colonies free and independent for ever, thereby bestowing countless blessings upon all mankind. And we of to-day, of our own time and generation, have seen a Nélaton gracing the Senate of the French empire, a Rokitansky at the council-board of Austria, a Virchow the cherished and trusted leader of his party, whose parliamentary speeches are no less incisive and searching in the interest of freedom than his scalpel in pursuit of knowledge in the amphitheater of the pathological institute. The lives of Sir Astley Cooper, of Sir Benjamin Brodie, of Sir Henry Thompson, of Sir Jas. Y. Simpson, of Sir Jas.

Clark, and a host of other English physicians and surgeons, elevated to the baronetcy for their professional acquirements, afford ample proof that the physician is not without honor even in his own country. But there is no need to select the *facile principes* of the craft; the sum of confidence, of love and affection, bestowed upon the faithful follower of medical art, the general practitioner, whose breast becomes the receptacle of so many sorrows, whose heart shares so many joys with those who are entrusted to his care, by far outweighs the distinctions bestowed upon single prominent individuals and forges indestructible links between physician and patient.

These peculiar relations between the public and the medical practitioner, unknown in a like manner and to the same extent in any other profession, call for certain essential qualifications on the part of the physician, without which he will never be able to fill his high office and perform his important and frequently delicate duties. To be a physician is to be a gentleman. This is a supposition in which, to the honor of our profession be it said, we are but rarely at fault, and if he be a gentleman of polished manners and address, so much the better for himself and his patients. Yet this is not all; the *conditio sine qua non* is a thorough knowledge of his profession, without which he has no right to claim the confidence of the public or the recognition of his brethren, and this knowledge should be so extensive as to embrace the best and latest scientific facts bearing upon the theory and practice of the different subdivisions of his calling. We see in every day life that a skillful mechanic receives employment, where the ignorant or less skillful fails. What is more natural than that you or I should and habitually do employ such a carpenter or shoemaker or tailor, with whose skill in their different walks of life we are familiar, and who, as we believe, will furnish us with the best article that knowledge and experience can produce? Is it then to be wondered at that, in cases where it is not merely a question of dollars and cents, or of the construction of an article of wearing apparel or of every day use, but where life and health are involved, the public will select, to the best of their ability, a physician in whose knowledge and skill they may safely confide, in preference to some one who, in their opinion, in less trustworthy? Hence we see that he who by a long professional experience has acquired the right to be trusted is, as a rule, consulted in preference to the younger practitioner. But colleges do not graduate experienced men; they send out into practice those whom by didactic and clinical teaching they have prepared to profit by future experience, and these young men start into competition with their seniors and ask the public to transfer a portion of their patronage and confidence to them.

What is the *prima facie* evidence to assure the layman of the knowledge

and standing of the young medical man about to start in life? Can he examine into his qualifications as a scientific practitioner; is he able to apply the scale to his proficiency and satisfy himself that he may safely entrust his life and the lives of those dear and near to him in his care? By no means; the passport to public confidence in his skill is the diploma, which, over the broad seal of his College and the signatures of the Faculty, announces to the world that the bearer, an upright man, has passed the prescribed period of time in the study of the different branches of medicine, and that after due examination he has been adjudged worthy to bear the title of Doctor in Medicine, and that, therefore, this parchment bestows upon him all the rights and privileges appertaining to that degree. This document places him in the ranks of the medical profession; it is the charter upon which he pursues his calling; the ægis which protects him against assault; armed with it he enters the scientific associations of his seniors, and with them, drinks from the fountain of knowledge, can claim at their hands a full and complete recognition, and call upon them in time of need. This diploma possesses its value in direct ratio to the amount of knowledge upon which it was issued. If it rests upon a record of hard work well done, upon a record of duty faithfully performed, upon a record of scientific attainments nobly acquired, upon a record of a rigorous and searching final examination successfully passed, then this parchment becomes eloquent and its Latin sentences herald merit bravely won, it places upon the brow of its possessor the chaplet of scientific acquirements, and stamps him as one upon whom the public may safely bestow their perfect confidence, one in whom they will find the skillful practitioner and wise councilor, one whose knowledge enables him to correctly diagnosticate, to judiciously treat their ailments, one who even in the face of threatening death never loses that calmness which can only be given by a thorough understanding of the case, and who, although his art may, alas, *but too* frequently fail in saving life, yet from the storehouse of his knowledge is able to at least draw forth a remedy that will assuage the pangs of dissolution.

But take the reverse of the picture: Another aspirant for professional fame and emoluments starts out in life; he, too, possesses a diploma; it differs in no wise from the other; it shows the seal of his College, the sign-manual of the Faculty; it bestows the same rights and privileges upon its bearer. The public cannot determine whether it is based upon knowledge; to them the holder is a duly qualified practitioner exactly like the bearer of the other. Yet, could they search the records, what a tale might be unfolded! A few months of study so-called, scraps of knowledge carelessly gathered and far more dangerous in their incompleteness than ignor-

ance, a final examination calculated rather to hide than to expose the glaring breaks in the scientific attainments of the applicant for the honors of the doctorate; his brain a receptacle of odds and ends thrown in and stowed away without system, himself unable to make use of what little he does know, or worse still, not knowing how little he has accomplished and fancying himself possessed of a perfect title to preferment, to admission into an honorable profession. Is it just, is it fair to permit such an one to go out among the public, who look to us for protection, who entrust to the medical profession their health and lives, and who can thus, only by bitter experience, learn to distinguish between the man of Knowledge and the charlatan of Ignorance? What is the diploma in this case? Is it the badge of honorable distinction, or is it the cloak of incompetency? Is it the passport for merit, the record of knowledge laboriously earned and carefully digested, or is it a fraud and a sham? And as in the one case the diploma stamps the seal of approval upon a thorough medical education, and in the other serves as a cover to hide the hollow-eyed skeleton of ignorance, just so will the future careers of the two possessors compare to each other. In the former we find the merited success which knowledge and capacity must achieve sooner or later; there may not, indeed, accrue riches or eminent station in every case; the name may not be handed down to posterity as one of those called great; the circle of duty may be comparatively contracted; the work done may, in its results, like violets bloom unseen; yet, whatever fall to the lot of such a man will be accepted cheerfully, his duties will be performed conscientiously and under the guidance of scientific principles; little by little the boundaries of his influence will widen, his quiet power will be felt in the community, the respect of his fellow-men will uphold him in his arduous work, and those by whose bedside he has stood during the trying hours of sickness, who have been cheered by his reassuring voice, who have received aid and comfort and health at his hands, will rise up and call him "blessed."

Upon the other hand, he who is ignorant of his profession, unacquainted with its teachings, and not fully imbued with the scientific truths underlying rational medicine, must sooner or later fail. True, he may, like a bubble, ride upon a temporary tide of meretricious success, making dupes of those who, trusting in his diploma, may employ him, but, be the time short or long, he will finally fall behind. Not able to win the respect of his co-laborers in the field, ill prepared to cope with those whose knowledge is their strength, he soon begins to waver; he is not calculated to love a science of which he knows but little and thus he cannot be aroused into that devotion to its cause which alone lays open the road to success and smooths the rocky path leading to eminence; hence,

he doubts, halts, casts about for new guides, and without a firm basis is, like a blade of grass swerved by every passing breeze, influenced by every new notion, provided it promises easy reward and requires little application; what then more in the nature of things, than that he should fall the but too willing prey of the pathies and isms which stalk through the land and trade and wax fat upon the ignorance of the people? This is the class of so-called medical practitioners who form the bulk of recruits for the army of quackery, leaving the ranks of men with whom they have nothing in common save the *name* of physician, and who ostentatiously renounce a science with whose first rudiments, to say the most, they have an exceedingly limited acquaintance.

It is true I have sketched extremes, and these extremes may not be the rule but the exception. I grant that between them there are numerous shades from light to dark, and that a man may be an efficient medical practitioner without of necessity reaching the very pinnacle of the profession. I also grant that a Collegiate curriculum, no matter how perfect, may fail to produce prominence in the future practitioner, for reasons inherent in the capacities of the student; but it must be admitted that much depends upon a thorough groundwork and upon the development of the embryonic gifts and talents which may slumber in his brain, and the accomplishment of these objects should, beyond a doubt, be the chief aim and end of medical teaching.

Our constituents (and where is the human being who can say that at some time or other he will *not* be among them?) expect, and justly so, that the young medical graduate should be equipped with such a knowledge of his profession, that, to say the least, he may safely be granted a trial.

The medical profession has the right to demand from the Colleges such additions to its ranks as will redound to the credit and honor of the fraternity; *and Science* calls upon us to permit no man to enter her service, who is not able and willing to add his mite, be it ever so little, to the advancement of her cause. To satisfy these *reasonable* demands of the public, of the profession, and of science, it is absolutely essential that College curricula should represent the crystallized embodiments of medical doctrines down to date; and that they should advance *pari passu* with the latest improvements in practice, the latest scientific discoveries and the latest theories advanced for the elucidation of physiological and pathological phenomena. Have our Colleges responded to these reasonable demands? Have they always kept in view the one thing: proficiency in our science as it presents itself at any given period? or, have they sacrificed competency in their graduates to turning out large classes after

shortened and insufficient courses? Have they kept pace with the onward march of science, irrespective of pecuniary gains or losses? Have they borne aloft the banner of medical education in the front rank of the army enlisted in the cause of progress and truth, or have they lagged behind, while their European prototypes pushed their system of instruction forward and maintained it upon a line with the scientific requirements of the day? A short glance at Dr. N. S. Davis' Report upon Medical Education and Medical Institutions in the United States of America will perhaps assist us in arriving at a satisfactory conclusion upon this question. Here we learn that the first medical school upon the Western Continent was established by the University of Pennsylvania in the year 1765, eleven years prior to the declaration of independence, when the board of trustees elected Dr. Morgan prof. of theory and practice of physic, and Dr. Wm. Shippen, jr., prof. of anatomy and surgery. These gentlemen announced to the public through the columns of the Pennsylvania Gazette of Sept. 26, 1765, a programme, embracing theory and practice, pharmacy, chemistry and surgery, together with clinical instruction in the wards of the Pennsylvania Hospital, and inviting the co-operation of the profession and the general public. The trustees, moreover, stated that "their scheme of medical education was to have as extensive and liberal a plan as in the most respectable European seminaries, and that the utmost provision was made for rendering a degree a *real mark of honor*, the reward only of *distinguished* learning and *abilities*." And in 1767 they established two degrees in medicine, that of Bachelor and that of Doctor. For the former the qualifications were that, before admission to the degree, the candidate must show satisfactory acquaintance with Latin and such branches of mathematics and experimental philosophy deemed requisite to a medical education. Attendance upon at least one course of didactic as well as clinical lectures, and upon the practice of the Pennsylvania Hospital for one year, and a satisfactory public examination; previous to which, however, the candidate must have passed an examination before the medical trustees and professors. He must also have served a sufficient apprenticeship to some reputable practitioner and show a general knowledge of pharmacy. Whilst for the degree of M. D. the following were the requirements: at least 3 years must have intervened from the time of taking the Bachelor's degree; the candidate must be fully 24 years of age, and must write and defend a thesis publicly in the College, unless he be beyond seas or too remote upon the continent. In the latter case, a written thesis may be sent, and, upon being approved of by the College, the degree is issued.

These were the requirements in 1767, and compared with the state of

medicine at that period, this was a high standard, indeed, because it came fully up to the times; in fact, these rules were identical or nearly so with those of European Seminaries. Therefore, the trustees were justified in announcing that they fully intended the degree to become a real mark of honor and reward of distinguished learning and ability. Over one hundred years have passed away, nations have been born and nations have died, the map of the world has again and again been remodeled, mighty events have convulsed nations and continents, great men have played their role and left their good or evil impress upon posterity; civilization has progressed, the arts and sciences have achieved triumphs never dreamed of before; the very elements have been forced into subjection to the genius of man; fire, water, air and light obey his call; heaven's lightnings are his messengers, and Shakspeare's poetic fancy has become reality, for Puck's girdle spans the globe and annihilates space. And while thus the world rolled on, has medicine stood still? Or has it shared in the mighty advance of science everywhere? You will pardon me if I simply point to a few things now absolutely essential to the intelligent study and practice of medicine, which at that day were either unknown or at most but feebly developed or embryonic. Of the fundamental branches, anatomy alone had attained a secure position through the labors of the older investigators, yet it was only makroscopic, and histology was unborn for reasons presently to be mentioned. Based upon this naked-eye anatomy, there was an imperfect and crude physiology, (indeed, as we understand the term now, there was *no* physiology,) and here, thanks to the immortal Harvey, we see but a single question fully settled, viz: the course of the circulation of the blood. The composition of the air being unknown, for oxygen had not been discovered, can we look for anything but the merest speculations upon respiration, resulting in the one conclusion, that air entered and left the lung, and that the blood was changed in some manner, as proven by the difference in color between arterial and venous blood. Haller, then the acknowledged authority upon physiology, asks and leaves unanswered the question whether or not some subtle element from the air may not penetrate the blood and be the cause of its color, as light is required for the color of plants, and seems content with refuting the theory that the use of the lungs is to absorb a nitre from the air to the blood, and supposes that expired air is injurious to health because of some putrefactive ingredient. Hundreds of points might be selected tending to show the radical changes that have taken place since in physiological thought as well as investigation, but I will content myself by referring to a single branch, that of generation and development. In 1759 Wolff had published his theory of Epigenesis, and in 1769 his

monograph upon the formation of the intestines. These remarkable theses, which completely overthrew the old theory of præformation, were attacked by Haller, Bonnet and Leibnitz, and fell still-born upon the majority of physiologists, remaining without effect for fifty years, until Meckel (in 1812) drew the attention of embryologists to the second thesis. These works form the starting point of the modern views upon development, which have exerted so deep and widespread an influence upon physiology. Modern chemistry, this useful handmaid of medicine, was unborn, and rational therapeutics, treating, if possible, causes, and not merely attacking symptoms, was all but unknown, whilst experimental physiology and therapeutics, to which practice owes so much, is the growth of our own time and daily receiving valuable additions in all its branches. As to surgery, two words will suffice to mark the total revolution that has changed its aspect during the last fifty years, anæsthetics and conservatism; the former widening the field of operative surgery to a degree utterly impossible before their introduction, and the latter the outcome of an enlightened pathology, and aiming not at interference with, but at aiding in every possible way the processes designed by nature for the cure of surgical lesions.

The art and science of obstetrics was taught by the professor of anatomy, showing how little heed the medical mind of the day took of the importance and beauty of that branch of our calling; in fact, almost the entire obstetric practice was in the hands of the *sages femmes*, whose ignorance was only equalled by their complacent and mysterious self-sufficiency. Under these circumstances it is hardly necessary to ask you to picture to yourselves the state of that branch called science and practice. Without a correct basis upon which to build their ideas of disease, our forefathers floated in a sea of speculation and of doubt; they had no pathology as we understand the term, because there was neither physiological nor pathological anatomy. The microscope had not as yet revealed to the startled and delighted eye of the investigator the wonderful structure of the human microcosm; it had not traced the minute organisms composing the greater organs and tissues; unarmed with this "open sesame," the physiologist was unable to place a correct valuation upon the cell, its birth and life-history; and although Harvey had already, upon theoretical grounds, announced the dogma of *omne vivum ex ovo*, it still remained for Baer in 1827 to demonstrate the human ovum and for Virchow to supplement Harvey's dictum by his "Omnis Cellula e Cellula et in Cellula," and to defend the view that each cell represents a quasi-independent being, or, to speak with Brücke, an elementary organism in the grand totality of the life of the entire organism. Without the microscope it was impossible to trace the direct connection between physiological and pathological condi-

tions and to advance to the doctrine, now the very corner-stone of modern medicine, that disease is not a foreign invader, to be attacked *vi et armis*, to be dislodged by purgatives, or starved into subjection by phlebotomy, that pathological products do not represent a something entirely devoid of connection with physiological structures, but that even the most heterologous are merely deviations, more or less extensive from the normal conditions of the parts, and that, in order to properly appreciate them, in order to treat them intelligently and not at haphazard, we must trace them back to their point of departure, and then follow the frequently insidious and slow changes which transform the cells and fibres and tissues into the structures called pathological.

But not only did the men of a hundred years ago lack the microscope, they also lacked means of investigation and of establishing a diagnosis, which to-day are as household words even among the tyros in medicine. No Lænnec had as yet revived the neglected discovery of Auenbrugger and established the principles of auscultation and percussion; no laryngoscope afforded the means of direct inspection of the air-passage; no ophthalmoscope searched the fundus and media of the eye, not only revealing disease of the organ itself, but also pointing out pathological changes in other parts of the body. The graphic method of experiment and examination formed no part of the curriculum of the 18th century, the sphygmograph, cardiograph, spirometer, spectroscope, and a host of other aids, being inventions of our own time. Electricity assisted neither the physiologist in experimentation nor the physician in treatment of disease, and the clinical thermometer did not as yet register and faithfully retain for record the exact degree of temperature of a patient. The chemistry of the urine, an essential in the practice of to-day, was undiscovered. But why multiply examples when we can point to whole subdivisions of medical lore which were yet to be founded, such as scientific obstetrics, gynæcology, opthalmology and otology, sanitary science and preventive medicine. In fine, the genius of the 19th century had not touched medicine with his magic wand and elevated it from the obscurity and shadow of metaphysical speculation upon the solid pedestal of facts and into the noonday rays of scientific investigation. This century will stand pre-eminent in history as the era of natural science. Look where we may among the civilized nations, and we find everywhere active workers in the different departments of this fruitful field; new roads to valuable discoveries are opened daily, new facts are constantly being brought to light; the circle of darkness is steadily pushed back by the widening of our knowledge, and the present condition of medicine and its collateral branches is well depicted by Dr. Rutherford, who speaks of physiology as follows:

"The prevailing aspect of physiology at the present time is undoubtedly physico-chemical. The vitalism or spiritualism that Stahl revived in opposition to the physical teachings of Descartes is receding, and the neglected thoughts of Descartes, so admirably restored to us by Huxley, are again coming boldly to the front and demanding our serious consideration. Every fact with which we are acquainted tends to show that the body, mysterious and inexplicable in many of its ways though it be, is virtually a machine; that is to say, its actions appear to be regulated by physico-chemical laws, just as much as those of any machine of human contrivance. It is true that the living grows in a way very different from the ordinary machine that is put together by the hands of a visible maker. It is true that it can to a great extent repair itself, which no other machine can; but these details, when rightly regarded, do not appear to me to be in any way opposed to the view, that the principle of action is the same in both." And Prof. Hermann, in the introductory to his work upon physiology, defines the principles underlying its study in the following language: "The processes peculiar to the living body, the totality of which constitutes life, may be broadly stated as regular alterations, 1st of their chemical composition; 2d, of the forces acting in them; and 3d, of their form. In former days the cause of these peculiarities was sought after in special hereditary capacities, the sum of which was designated under the name of '*vis vitæ*.' This vague conception has, however, been abandoned since the laws of inorganic nature have been discovered to preside over the most thoroughly investigated processes of life, and especially since the application to the organic world of a great principle of modern science has taught us the relations which exist between the changes in the matter and forces of organized beings. Relying upon this knowledge, we believe that the forces of living are the same as those of inanimate bodies and that they obey the same laws, and consequently that it will ultimately be possible to explain the hitherto incomprehensible phenomena of living beings, particularly their morphological processes, by physical and chemical laws."

These quotations from two of the leading physiologists of the day, to which a large number of similar expressions by other prominent investigators might easily be added, show the drift of modern medical thought, which may be summed up in the sentence: Physics versus Metaphysics.

Indeed the following lines from Goethe's *Faust* afford a not inapt expression of the slight value placed upon mere metaphysical speculation by the modern physiological and pathological investigator:

"I tell you what, a speculating wretch
Is like a brute, on bare, uncultured ground

Driven by an evil spirit round and round,
While all beyond rich pastures smiling stretch."

It is the application of these principles to the elucidation of the phenomena of life, which has done more for the advancement of medicine than any other current of thought; experiment, observation and deduction have become the potent mainsprings by which medicine has been fully elevated to take rank as one of the great subdivisions of natural science. True, we cannot, do not claim for it the cognomen of "exact," such a condition is neither desirable, nor probably attainable, because the ever-changing phenomena of the kaleidoscopic picture called life, while completely under the working of nature's immutable laws, present so many striking and wonderful phases, that for many of them, even with the most improved methods of investigation, theories founded upon observation of analogous conditions or the action of analogous forces of nature must suffice for explanation.

Medicine, then, has advanced, and by its intimate union with natural science has been enabled to push its investigations in directions and to an extent heretofore unknown and impossible; hence it must be obvious to every observing mind that the study of medicine, as the latter exists to-day, presents greater difficulties and labor than it did at the beginning of our century.

This being the case, the next question is, whether our system of medical education has kept pace with the advanced state of our science; in other words, have we afforded to the student the time and facilities commensurate with the demands and requirements of the age?

As already stated, our standard of 1765 was copied from and modeled after that of European universities and fully up to the then state of medicine. What are the requirements of these institutions to-day? Just this: Proof of a preliminary classical education, i. e., the student must, before being admitted to the University, possess a fair knowledge of Latin and Greek; must be well-grounded in his mother-tongue, and also show proficiency in mathematics and the kindred branches. He is not admitted to a final examination until after a curriculum of from 3 to 7 years, and during all this period his studies are carefully graded, taking him from the lower to the higher branches. Moreover, in order to be promoted from a lower to a higher class he must undergo a rigid examination. It is almost superfluous to add, that clinical instruction and work in the chemical and physiological laboratories go hand in hand with didactic lectures.

This, you will admit, contrasts strongly with the programme of a hundred years ago. Can we show a similar contrast? Again consulting Dr.

Davis's monograph, we learn that the Philadelphia institution, finding that but few returned, after having received the degree of Bachelor, to pass an examination for the doctorate, in 1789 abolished the Baccalaureate and adopted the regulation, that no person should be received as a candidate for the degree of Doctor in Medicine until he had arrived at the age of 21 years and had studied medicine in the College for at least two years. Students residing in or near Philadelphia were required to be pupils of some respectable practitioner for three years, while those from a distance must have passed two years in a practitioner's office. Is it surprising that the other medical schools, established as our population increased and our territory expanded, should follow the example of the parent institution and adopt a similar standard? Could Colleges of less renown and prestige do better than follow her lead? By no means; self-interest forced them to go no higher, and in some cases to go a great deal lower, and although the usual announcement of the majority of our Colleges only claimed attendance upon *two* courses (of five months each) of didactic lectures, with three years of office instruction, some of them really seemed to have discovered the royal road to learning and to have managed to compress their curriculum into one year. Lest you should doubt this performance, permit me to give you a specimen: On page 30 of a pamphlet entitled American Medical and Parmaceutical Colleges, 1875–'76, we find the announcements of two Colleges located in a city of one of our central States. We learn that the *personel* of the Faculties was identical in both schools, but in one of them the course of lectures began March 1st, ending in the last week of the following June; while in the other the session commenced in the first week of October and terminated in the last week of February following, and the student matriculating in the former as early as the 1st of February was given the privilege of one month's attendance upon the lectures of the other school. He thus enjoyed the *inestimable*(?) boon of rushing through two full courses of lectures in nine months. But as a rule we find a requirement of about 10 months of actual instruction, spread over a period of two years and of a pupilage of three years under some practitioner in good standing; the latter, however, by no means insisted upon and generally only nominal. Subtracting the Christmas vacation, we have altogether about 36 weeks of daily attendance upon lectures, and this was deemed sufficient to lay a solid foundation in the seven principal branches, not to speak of specialties, and to fit the student for the proud title of Doctor in Medicine. Is there a single calling requiring any preparation at all that demands so little time before admitting its follower into full and recognized fellowship with the other members of the craft? Would you confide the repairing of a valu-

able watch to the tender mercies of an apprentice of ten months' experience in his calling? And yet our schools fix upon ten months as the measure of time to fit the medical student for the most important duties that can be imposed upon man; duties that require the practitioner to confront disease in its protean form at any hour; to stay death by all the weapons of attack and defence that modern science and ingenuity have devised. Called to the bedside, he finds no time to consult his books; delay may frequently mean destruction; life may be rapidly ebbing away from the severed artery, from the diseased lung, or in a hundred other ways by which death approaches its victim; what is to be *done* must be done promptly, and knowledge alone can afford the means to victory, can beat back the waves about to engulf the patient, and this knowledge must be ready at hand, or else the physician fails and death conquers. Now, cases of this kind may happen to the youngest graduate, and mind, he may meet with them in three distinct applied branches,—in practice of medicine, surgery and obstetrics,—and he may be called upon without knowing beforehand what sort of a case he is going to encounter, yet he must be ready for all of them; and all this knowledge to enable him to be ready is to be imparted in a course of instruction of ten months!!

But let us suppose that the brain of the student could be crammed with the requisite information in the period of time mentioned, do our Colleges really give that time? By no means. A student enters College, takes out his tickets and attends lectures; he may be utterly ignorant of anatf omy and physiology, yet he is instructed in medicine, surgery and obstetries, all of them presupposing a thorough knowledge of the structure and working of the organism. Whilst being initiated in the very A, B, C of the fundamental branches, a knowledge of the bony skeleton and the physiology of the cells, his professor of medicine may be expounding the etiology, pathology and treatment of diseases of the heart, his professor of surgery the theory of inflammation and the migration of the colorless corpuscles, and his profeesor of obstetrics the signs and symptoms of pregnancy. In other words, we have had no grading of subjects, and the result has been that the student has yearly listened to the same lectures, his seeond eourse representing a "twice told tale." Nothing can be less ealculated to instruct, nothing can be more apt to bewilder the brain of the student, than this ruinous mode of lecturing to a mixed class upon all branches at once. How can the student profit by lectures, be they never so clear, upon diseases of the heart, without possessing a thorough understanding of the physiology of the organ? What to him are systolic and diastolic murmurs, endocardiac and exocardiac sounds, reduplicated sounds and double impulses, if he be ignorant of the causes of a physio-

logical first and second sound and of the heart's impulse? What conception is he to form as to the mechanism of tabes dorsualis, of aphasia, of hemi- and paraplegia, of paralyses of motion and of sensation, if he be ignorant of the anatomy and physiology of the nervous system? Surely the study of medicine has its A, B, C, and its progressive stages, just as other sciences have their grades from the lower to the higher branches, and we might as well expect that a medical student could successfully grapple with the intricacies of pathology, without a thorough training in the preparatory branches, as that the tyro in mathematics could understand and digest a discourse upon conic sections. Yet this repetitional system has, with us, become the order of the day, and we have taken heed of neither proficiency nor deficiency of the student, but have seemingly been intent upon the one thing, the manufacture of physicians in the shortest possible period of time. Can we feel surprise at the fact that our Colleges have turned out year by year a certain proportion of their graduates, not for the noble profession of rational medicine, but for the arrant humbugs of quackery that fill our land?—That without a solid substratum of medical education so many of our graduates fail to come up to the requirements of our science? While our common school system compares favorably with that of European countries, and while our seminaries of classical learning afford an education equal to that proffered by the high schools of England and Germany, our medical institutions, closing their eyes to the rapid advance in all branches of medicine, unmindful, (apparently,) of the vast progress in physiology and pathology which has led in the European institutions to so high a standard of proficiency, have rested content with the status of over fifty years ago, and some of them have actually lowered that standard. Medicine has widened its field and scope, and our College curricula have been contracted, thus presenting an anomalous condition not seen elsewhere in the civilized world.

But, say you, do we not possess a large number of eminent physicians and surgeons and a medical literature of a high order of merit? And why should we not go on with the old system, if we can attain such results by it? We want practical men; men able to treat disease as they find it and as it suits our people, not men deep in the mysteries of pathology and the intricacies of hystological problems. In answer to such objections I have to say that no one can be more fully imbued with the fact, that as far as our literature is concerned, the old sneer of "Who reads an American book?" has long since been answered, and that, in some branches at least, notably so in gynæcology and surgery, it has long since been supplanted by the question of—Who does *not* read an American book? And I am equally aware, that in the practical walks of medicine, surgery

and obstetrics we can show names that will stand the test with any that may be mentioned. But while fully admitting the fact, I do not hesitate to say that these results are not due to our deficient system of education, but that, in the vast majority of cases, they are the outcome of studies and labor beyond the College curriculum; that they are *post sed non propter*. And I would furthermore submit that a nation of over forty millions, extending over an immense territory, from the lakes to the gulf of Mexico, from the Atlantic to the Pacific, living under almost every conceivable condition of climate and habit, yet all speaking the same language, thus rendering interchange of views direct between the most distant points; with a catalogue of diseases so varied that no other single nation can show anything approaching it, and presenting an incomparable field for scientific research—a nation which, upon the occasion of its first Centennial Celebration, plucked the palm of victory for the grand and astounding achievements of the genius of its inventors, I submit that such a nation, although it has accomplished much in our science, should have shown and would have shown still greater and better results had our system of medical education kept step with that of the civilized nations of Europe. A nation that contained the material for a Joseph Henry should, and doubtless does contain the germs of a Virchow, a Trousseau a Rokitansky and a Watson, and it is the plain duty of medical education to foster such a germ and to cause it to proliferate into that completeness of development for which a bountiful nature designed it. Inadequate time and failure to grade the courses are the essential defects of the old system, and it is due to the latter that a student's progress and proficiency cannot be determined until the final examination, while a plan of graded study, naturally leading to yearly examinations, enables the professor as well as the student to gain the information, whether the latter is fitted to profitably engage in the study of the higher branches. These glaring faults have been the subject of anxious solicitude upon the part of the profession, and we find that the plan of organization of the American Medical Association, in 1846, defines one of the objects of the association to be the elevation of the standard of medical education. It would be beyond the scope of my remarks to point out the many obstacles in the way of the National Association to give practical effect to its recommendation.

It is sufficient to state that the first efforts in this direction were made by individual institutions. The University of Pennsylvania most appropriately led in this needed reform, and in 1846 extended its sessions to six months; in other words, added *a single* month to each course of its curriculum of two sessions. This slight extension was evidently intended as a

test of the popular opinion, to discover whether a further demand upon the time and requirements of the candidate for the degree would be submitted to without detriment to the pecuniary interests of the College. What was the result? Not a single school followed, the classes gradually and steadily decreased in number, until finally, at the expiration of six years spent in this single-handed attempt, the College was forced back to the old groove, in order to support her ancient prestige of numbers; and thus lost the proud distinction of being not only the oldest medical institution of the country, but also the first to successfully rise to the demands of medical science and maintain instruction abreast with "the most renowned European seminaries of learning." The laurels thus actually within her grasp, were earned in 1859 by the Chicago Medical College, known since as the Medical Department of the Northwestern University. This College was organized with the express purpose of affording a superior education to students of medicine; the trustees adopted a three years' course of lectures and a graded and consecutive system of instruction. Supported by a liberal charter from the State legislature, this plan has proved highly satisfactory and thus gives evidence that, no matter how conservative the medical mind may be, and I fear that this conservatism has been carried beyond the limits of propriety in our plans for medical education, a firm will will find a way for the inauguration of a reform so much needed in our country. For 12 years, down to 1871, this school held an isolated position, ere another and more renowned University, that of Harvard, determined to make her medical school the equal of her own great classical department, by the adoption of the progressive plan of education. Yet, with all the pre-eminence of Harvard, and located as this University is in that portion of our country which claims to be the very centre of all American education, what was the result even here? A heavy monetary loss to the medical department during the first years succeeding the inauguration of the new curriculum, simply because students found it less troublesome to matriculate at schools where the old plan was still in force. But, in spite of pecuniary drawbacks, Harvard persevered and conquered success; and her school is now in a condition more prosperous than ever it was under the old regime. And it redounds to her lasting honor, that this long step forward was taken without the aid of rich endowments securing the Faculty against pecuniary losses. Six years after, in 1877, the University of Pennsylvania, after mature and careful deliberation, and as Dr. Pepper tells us, "after assurances were received from generous friends of the institution that rendered it certain that the intended changes could be successfully maintained, even if a temporary decrease in the size of the classes should occur," followed the lead of Har-

vard and enrolled herself under the banner of progress. A few other Colleges have also made the advanced curriculum obligatory upon their students, and a number earnestly recommend to their classes to avail themselves of it, though leaving it optional with the student whether he will graduate under the old or new plan. In this connection it is with no little satisfaction that I am enabled to state, that practically the chief features of the progressive plan have been in operation in most if not all the branches of our school ever since the session of 1876–'77. The Faculty have insisted upon a three years' course, have established preliminary examinations in anatomy, physiology, chemistry, and materia medica; have, as much as possible, graded the subjects lectured upon, and frequent class recitations have served to determine the progress of the students. It remained, however, for this year to see the adoption and official promulgation of the new plan in its full extent. The pivotal points of this new departure, as already stated, are obligatory attendance upon three courses and careful grading of the subjects, so that the student passes gradation from the fundamental to the branches forming the practical superstructure of medical science and art. Moreover, two months have been added to each winter session, and thus with a summer course of two months, this College offers nine months of uninterrupted instruction every year. The benefits accruing to the student by these changes cannot possibly be overestimated; the increase of time insures to him a full and exhaustive treatment of every branch of medicine, for, since there will be no repetition, fourteen months *at least* are thus made available for each one of the seven chief subdivisions. Now, I venture to say without the slightest fear of contradiction, that, under the five months' repetitional plan, there is not a single branch that was not vigorously pruned in order to be crowded into the allotted space of time, and thus the graduate entered upon practice, without ever having received a *full* course of lectures in the proper meaning of the term.

That an elevated standard of proficiency imposes an increased amount of labor upon the student no one will deny, but I would remind the class that, as yet, knowledge has never been gained without work, and that no man ever became a physician by inspiration. A great military chieftain once said that three things are necessary to make war, money, money, and money again. I would say that to master the science and art of medicine three things are absolutely necessary, work, hard work, and more hard work. Remember that a student's knowledge should form a solid foundation for the work of a life-time, and that college days, the days of questions and answers and explanations never recur; once without the walls of your alma mater, and you stand upon your own merits; you

stand or fall according to the amount of knowledge you possess. But, while the Faculty are fully determined to bring their classes up to the front rank, they do not purpose to prove relentless taskmasters; on the contrary, they intend to lighten the burden as much as possible and smooth the path to proficiency by all means in their power. Hence they have instituted weekly class recitations in each branch, and by this means the student's attention is constantly kept upon the alert, and any deficiciency in his knowledge can easily be remedied. To my mind, however, the greatest boon to the student lies in the arrangement by which but two or at most three didactic lectures are delivered each day; this enables him to carry away the greater portion, if not all of the information thus imparted, and leaves him fully prepared for home reading. In fact, four consecutive lectures, as under the old plan, must have proved an *embarras des richesses*, so great and overpowering as to become indigestible, and I have no doubt, from personal experience, that the brain of the student is either completely bewildered during the last lecture, when dim outlines of physiology, materia medica, obstetrics and anatomy perform a very witches' dance within the convolutions of his brain, or else, indeed, and this is by no means a rarity, tired nature has recourse to her own sweet restorer, sleep, to while away this last hour, leaving the disciple of medicine in blissful oblivion of bones, processes, articulations, muscles and ligaments until the janitor's bell again restores him to consciousness and self. But the Faculty, still with an eye single to affording the student every possible facility, have determined upon yearly examinations, in order that there may be no advance unless warranted by the evidence thus afforded of proficiency in fundamental branches, and in this manner the student yearly leaves behind him a record of work accomplished, which finally carries him up to the rigorosum at the close of the curriculum, the successful passage of which, after the careful and graded instruction of three years, will doubtless convince him of the wisdom of his former training, and give to him the honors so well merited and so fairly won. At the same time, all these examinations being in writing, with questions alike for all the candidates, the most absolute fairness is insured, and moreover the student takes with him to his yearly as well as his final examinations the record of his class recitations, and is thus enabled to swell his final average, which last, to pass him, has been fixed at a figure that will place it within the reach of every diligent candidate and yet satisfy the demands of science. In thus elevating the standard of didactic instruction the Faculty are at the same time not unmindful of another obvious duty upon their part: to teach the student not only to *know* but also to render him capable to *do*. Hence ample facilities will

be provided for the pursuit of practical anatomy, without which no one can ever hope to become either a surgeon or a physician; and by dint of shortening the daily task of attendance upon didactic instruction, sufficient time will be afforded for the object-teaching of the dissecting room. Hand in hand with this, the lectures upon physiology will be fully illustrated by experiment, and the summer course will be devoted entirely to the one object, that of rendering every member of the class practically familiar with the work of the physiological laboratory; and, to give practical illustration in the applied branches, they offer in the College clinics and in those of Providence and the Children's Hospitals, to all of which the students are not only admitted, but earnestly requested to come, an abundant material for study of diagnosis and treatment of cases. These, then, are in brief the outlines of the plan mapped out for the future government of the school, and but one thing has been omitted to render it equal in all respects to that adopted by the most advanced institutions: preliminary examination before the student is permitted to matriculate. This feature, the benefits of which cannot be overestimated, and with the value of which the Faculty are fully impressed, has been omitted for the present because it was thought best to make haste slowly, and not to draw the line too tightly at once. It is hoped, however, that this feature will form an integral part of the new plan at no distant day.

The rigorous execution of the new curriculum brings our medical school fully abreast with the high standing ever maintained by the great University of which it forms an important department, and with those medical schools which have already enrolled themselves in the service of progressive medical education. To render this plan, which insures a thorough medical education to all who choose to avail themselves of it, *a success*, the class must aid the Faculty by a hearty co-operation. Therefore, to those of you who, having matriculated before to-day, and who are thus not obliged to come directly under the provisions of the new laws, I would say, cast aside your privilege, (if privilege it be,) and at once enter fully and without reserve as students of the new era; so that there may be as little delay as possible in the firm establishment of your Alma Mater in her advanced position.

We also appeal to our medical brethren, who cannot regard with indifference so vital a change in a school from which they expect to receive a large proportion of recruits, to aid the Faculty by their moral support and good will. The old University, endeared to many of them by the reminiscences of College days, proves to-day that she has at heart the best interests of our profession, that she is determined to graduate no one, not fully prepared for such distinction, to bestow her diploma upon no one

not amply provided with a thorough knowledge of the latest and best views upon all parts of our science, and in thus adding to the ranks of the profession none but worthy members, she feels that she has the right to claim the support of every practitioner interested in medical progress. And finally we appeal to the general public for not only their good will, but for more substantial support in the form of foundations. Surely, they are the very first recipients of the beneficial results of an improved medical education, and the least they can give in return is to practically and effectively uphold an institution, the Faculty of which, undismayed by the prospects of a possible pecuniary loss, undaunted by the increase of labor bestowed upon them, still do not hesitate to adopt a plan which insures direct blessings to the public at large.

But, as there can be no possible difference as to the beneficent results of the new curriculum, so, to my mind, there is not the least doubt as to its triumphant success. I am convinced, from personal knowledge, that the students of our Alma Mater, assured of the increased value of a diploma won after a thorough course of didactic as well as practical instruction, will not shrink from the increased difficulties which are thus thrown in the path to the goal of their honorable ambition. The diploma bestowed under the new plan, will indeed prove a mark of honor and distinction, a passport to the confidence of the public, who soon will look upon the graduates of this school, the first in the District of Columbia to strike out in the direction so clearly indicated by the demands of science, as the men best qualified by careful training to take charge of their lives and health.

And thus our alumni will be able to proudly refer to their diploma as a token of distinction well won, and carry with them through life the comforting assurance, that they conquered their honors at an institution which, in bestowing the degree, is and ever will be guided by the principle:

"Non quot, sed quales
Pauci, sed maturi."